DESCRIPTION

MATERIALS AND METHODS FOR CONTROLLING PESTS

Government Support

The subject invention was made with funding from the National Institutes of Health (Grant No. AI 030464). Accordingly, the government may have certain rights in this invention.

Background of Invention

A longstanding worldwide demand exists for new, effective, environmentally friendly, and safe means to control pests that damage agriculture or serve as disease vectors. Agriculture costs incurred by pests exceed billions of dollars annually in decreased crop yields, reduced crop quality, increased harvesting costs, pesticide application costs, and negative ecological impact. In addition to agriculture pests, many blood-feeding insects are vectors for pathogenic microorganisms that threaten human and animal health, or are annoying at the least. As in the case of agriculture pests, direct and intangible costs incurred by blood-feeding pests concern pesticide safety hazards to humans and animals, bioaccumulation and environmental incompatibility, and synthesis and application costs.

Almost all field crops, nursery and horticulture plants, and commercial farming areas are susceptible to attack by one or more pests. Particularly problematic are Coleopteran and Lepidopteran pests. An example of a Lepidopteran pest is the hornworm larva of *Manduca sexta*, and an example of a Coleopteran pest is the Colorado potato beetle, *Leptinotarsa decemlineata*. Vegetable and cole crops, lentils, leafy vegetables, melons, peppers, potatoes and related tubers, tomatoes, cucumbers and related vine crops, as well as a variety of spices are sensitive to infestation by one or more pests including loopers, armyworms, moth larvae, budworms, webworms, earworms, leafeaters, borers, cloverworms, melonworms, leafrollers, various caterpillars, fruitworms, hornworms, and pinworms. Likewise, pasture and hay crops such as alfalfa, pasture and forage grasses and silage are often attacked by a variety of pests including armyworms, alfalfa caterpillars, European skipper, a variety of loopers and webworms, as well as yellowstriped armyworms.